

Joint Working Group 2.7: Land Hydrology from Gravimetry

General information

Chair: Annette Eicker (University of Bonn, Germany), eicker@geod.uni-bonn.de

Members:

- Jean-Paul Boy (University of Strasbourg), jeanpaul.boy@unistra.fr
- Petra Döll (University of Frankfurt), P.Doell@em.uni-frankfurt.de
- Andreas Güntner (GFZ Potsdam), guentner@gfz-potsdam.de
- Laurent Longuevergne (University of Rennes), laurent.longuevergne@univ-rennes1.fr
- Matt Rodell (Goddard Space Flight Center, NASA), matthew.rodell@nasa.gov
- Himanshu Save (University of Texas), save@csr.utexas.edu
- Bridget Scanlon (University of Texas), bridget.scanlon@beg.utexas.edu
- Ben Zaitchik (Johns Hopkins University Baltimore), zaitchik@jhu.edu

Webpage:

A website was set up to coordinate and document the group activities:

<http://www.igg.uni-bonn.de/apmg/index.php?id=535>

It includes the terms of references, contact information of the working group members and a complete list of publications originating from the years 2011-2013. It will be complemented by reports and joint results.

Activities

General activities

During the previous two years, working group members have been involved in various research areas associated with “Land hydrology from gravimetry”. Activities comprised tailored GRACE data analysis and signal interpretation, hydrological model development, model validation and calibration, as well as assimilation of GRACE data into hydrological and land surface models. Further research interests include water resource analysis and ground water monitoring, and the use of local, superconducting gravity observations to monitor local water storage variations. Additionally, assistance has been provided by working group members to the hydrological community via preparation of easy-to-use GRACE products and pedagogy on the use of GRACE data.

An email list has been set up and a discussion was started regarding individual questions and unresolved topics associated with the above research activities.

Future Gravity Workshop

In 2014 a workshop will be held on future gravity missions with the goal “Consolidation of science requirements”, which was initiated, among others, by Sub-Commission 2.3 (Dedicated satellite gravity mapping missions). Preparations have already started 2013 and will be continued during the course of the next year by thematic sub-groups. The hydrology sub-group will be covered by JWG 2.7.

Collaboration with IAG JWG 2.6 (Ice melting and ocean circulation from gravimetry)

A cooperation was established during a joint splinter meeting at EGU 2013 between working groups 2.6 and 2.7 to work together on a better understanding of hydrological and

glaciological effects in the Himalayan region. Different hydrological models show very different output in this region. As these models are applied to disaggregate the gravity signal and to isolate the ice melting effects, they represent a large source of uncertainty to the glaciological community. The reasons for the different hydrological modeling results are currently under discussion.

Future plans

An important task for the upcoming year will be the preparation and realization of the future gravity mission workshop, as mentioned above. This implies, as a first step, the inventory and review of various previous studies on future mission scenarios from a hydrological perspective. The next step will be the formulation of hydrological research goals that could be achieved with the different mission designs. Furthermore, the cooperation with JWG 2.6 and the joint discussion e.g. on the Himalayan glaciers will be continued. The discussion within the hydrology working group (e.g. regarding signal interpretation, preparation of dedicated GRACE products to hydrologists and data assimilation techniques) shall be intensified. Splinter meetings are planned at the IAG Meeting in Potsdam 2013 and at AGU 2013 in San Francisco.

Bibliography

A list of publications with contributions from working group members in 2011-2013 can be found on the webpage.

Joint Working Group 2.8: Modelling and Inversion of Gravity-Solid Earth Coupling

Chair: Carla Braitenberg (Italy)

Here follows the complete report of the activities and main results (1 to 3 pages).

Chapters (Headers Times New Roman 12 pts. bold)

Sub-chapters (Headers Times New Roman 12 pts. Italic)

Text Times New Roman 12 pts.

Table i.j: Example (Headers Times New Roman 10 pts)

Table				

Figure

Figure 1.m: Example (Times New Roman 10 pts.)